

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

COMMUNICATION OF
INTERNATIONAL APPLICATIONS

(PCT Article 20)

To:

United States Patent and Trademark
Office
(Box PCT)
Washington D.C. 20231
United States of America

Date of mailing:

25 April 1996 (25.04.96)

in its capacity as designated Office

The International Bureau transmits herewith copies of the international applications having the following international application numbers and international publication numbers:

International application no.:

PCT/US95/05219

International publication no.:

WO95/30670

**CORRECTED VERSION
VERSION CORRIGEE**

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer:

J. Zahra

Telephone No.: (41-22) 730.91.11

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark
Office
(Box PCT)
Washington D.C. 20231
United States of America

in its capacity as elected Office

Date of mailing (day/month/year)
28 November 1995 (28.11.95)

International application No.
PCT/US95/05219

Applicant's or agent's file reference
4798.P CP

International filing date (day/month/year)
04 May 1995 (04.05.95)

Priority date (day/month/year)
06 May 1994 (06.05.94)

Applicant

ROMINES, Karen, Rene et al

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

06 November 1995 (06.11.95)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

F. Gateau

Telephone No.: (41-22) 730.91.11

Copy for the Elected Office (EO/US)
PATENT COOPERATION TREATY

PCT/US95/05219

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE

(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

GAMMILL, Martha, A.
Pharmacia & Upjohn Company
Corporate Intellectual Property Law
301 Henrietta Street
Kalamazoo, MI 49001
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year)

12 July 1996 (12.07.96)

Applicant's or agent's file reference

4798.P CP

International application No.

PCT/US95/05219

IMPORTANT NOTIFICATION

International filing date (day/month/year)

04 May 1995 (04.05.95)

1. The following indications appeared on record concerning:

☒ the applicant ☐ the inventor ☐ the agent ☐ the common representative

Name and Address

THE UPJOHN COMPANY
301 Henrietta Street
Kalamazoo, MI 49001
United States of America

State of Nationality

State of Residence

Telephone No.

Facsimile No.

Teleprinter No.

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☒ the name ☐ the address ☐ the nationality ☐ the residence

Name and Address

PHARMACIA & UPJOHN COMPANY

State of Nationality

State of Residence

Telephone No.

Facsimile No.

Teleprinter No.

3. Further observations, if necessary:

Please note that the change in the company name applies also for the agent's address.

4. A copy of this notification has been sent to:

☒ the receiving Office ☐ the designated Offices concerned
☐ the International Searching Authority ☒ the elected Offices concerned
☐ the International Preliminary Examining Authority ☐ other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

F. Gateau

Telephone No.: (41-22) 730.91.11

Copy for the receiving Office (RO/US)
PATENT COOPERATION TREATY

PCT/US95/05219

PCT

NOTIFICATION OF THE RECORDING
OF A CHANGE

(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

GAMMILL, Martha, A.
Pharmacia & Upjohn Company
Corporate Intellectual Property Law
301 Henrietta Street
Kalamazoo, MI 49001
ETATS-UNIS D'AMERIQUE

| | |
|---|--|
| Date of mailing (day/month/year) 12 July 1996 (12.07.96) | IMPORTANT NOTIFICATION |
| Applicant's or agent's file reference 4798.P CP | |
| International application No. PCT/US95/05219 | International filing date (day/month/year) 04 May 1995 (04.05.95) |

1. The following indications appeared on record concerning:

☒ the applicant ☐ the inventor ☐ the agent ☐ the common representative

| | | |
|---|----------------------|--------------------|
| Name and Address THE UPJOHN COMPANY 301 Henrietta Street Kalamazoo, MI 49001 United States of America | State of Nationality | State of Residence |
| | Telephone No. | |
| | Facsimile No. | |
| | Teleprinter No. | |

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☒ the name ☐ the address ☐ the nationality ☐ the residence

| | | |
|--|----------------------|--------------------|
| Name and Address PHARMACIA & UPJOHN COMPANY | State of Nationality | State of Residence |
| | Telephone No. | |
| | Facsimile No. | |
| | Teleprinter No. | |

3. Further observations, if necessary:

Please note that the change in the company name applies also for the agent's address.

4. A copy of this notification has been sent to:

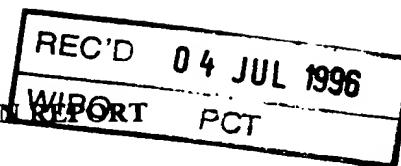
☒ the receiving Office ☐ the designated Offices concerned
☐ the International Searching Authority ☒ the elected Offices concerned
☐ the International Preliminary Examining Authority ☐ other:

| | |
|---|---|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35 | Authorized officer F. Gateau Telephone No.: (41-22) 730.91.11 |
|---|---|

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT


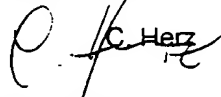
(PCT Article 36 and Rule 70)



| | | |
|---|---|---|
| Applicant's or agent's file reference 4798.P CP | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/US 95/ 05219 | International filing date (day/month/year) 04/05/1995 | Priority date (day/month/year) 06/05/1994 |
| International Patent Classification (IPC) or national classification and IPC C07D309/32 | | |
| Applicant THE UPJOHN CO. et al. | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This **REPORT** consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consists of a total of _____ sheets.

3. This report contains indications and corresponding pages relating to the following items:
- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☒ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

| | |
|---|---|
| Date of submission of the demand 06/11/1995 | Date of completion of this report 02.07.96 |
| Name and mailing address of the IPEA/  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0, Tx: 523656 epmu d Fax: (+49-89) 2399-4465 | Authorized officer  Telephone No. |

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/ US 95/05219

I. Basis of the report

1. This report has been drawn up on the basis of:

- ☐ the international application as originally filed.
- ☒ the description, pages _____, as originally filed,
pages _____, filed with the demand,
pages _____, filed with the letter of _____,
pages _____, filed with the letter of _____.
- ☐ the claims, No. _____, as originally filed,
No. _____, as amended under Article 19,
No. _____, filed with the demand,
No. _____, filed with the letter of _____,
No. _____, filed with the letter of _____.
- ☐ the drawings, sheets/fig. _____, as originally filed,
sheets/fig. _____, filed with the demand,
sheets/fig. _____, filed with the letter of _____,
sheets/fig. _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of: pages: _____
sheets of drawings/figures No.: _____

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box.

4. Additional observations, if necessary:

II. Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:
- ☐ copy of the earlier application whose priority has been claimed.
- ☐ translation of the earlier application whose priority has been claimed.
2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid.

Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/ US 95/05219

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

| | | | |
|-------------------------------|--------|-------|-----|
| Novelty (N) | Claims | _____ | YES |
| | Claims | 1-39 | NO |
| Inventive step (IS) | Claims | _____ | YES |
| | Claims | 1-39 | NO |
| Industrial applicability (IA) | Claims | 1-39 | YES |
| | Claims | _____ | NO |

2. Citations and explanations

The priority documents pertaining to the present application and the above-mentioned documents were not available at the time of establishing this first written opinion. Hence, it cannot be determined if the subject-matter claimed in the above-mentioned documents enjoys priority rights from the filing dates of their priority documents and, consequently, if it is novelty-destroying to the subject-matter presently claimed. If it later turns out that the claimed priorities are correct, documents identified by the letter „X“ as cited in the Search report are prejudicial to the novelty of the subject-matter claimed as they specifically and generically disclose compounds of formula I as claimed in the present application (e.g. Example 229 in WO-A-94/11361). Novelty of the common areas cannot be recognised. The applicant is required to delimit the subject-matter claimed in the present application from that in the prior art (Article 33 (2) PCT).

As the documents cited already disclose the same or similar compounds and their use as antiviral agents the compounds claimed in the present application and their use are regarded as obvious vis-à-vis these documents not exhibiting any inventive step (Art. 33 (3) PCT).

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/ US 95/05219

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

| <u>Application No. Patent No.</u> | <u>Publication date (day/month/year)</u> | <u>Filing date (day/month/year)</u> | <u>Priority date (valid claim) (day/month/year)</u> |
|---------------------------------------|--|---|---|
| WO-A-94/11361 | 26/05/94 | 09/11/93 | 13/11/92 13/07/93 01/10/93 |
| WO-A-94/18188 | 18/08/94 | 03/02/94 | 05/03/93 27/05/93 17/12/93 |

2. Non-written disclosures (Rule 70.9)

| <u>Kind of non-written disclosure</u> | <u>Date of non-written disclosure (day/month/year)</u> | <u>Date of written disclosure referring to non-written disclosure (day/month/year)</u> |
|---------------------------------------|--|--|
|---------------------------------------|--|--|

JUL 16 1996

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

PHARMACIA & UPJOHN
INTELLECTUAL PROPERTY LAW

To:

PERRY, Robert Edward
GILL JENNINGS & EVERY
Broadgate House
7 Eldon Street
LONDON EC2M 7LH
GRANDE BRETAGNE

3 - JUL 1996

GILL JENNINGS & EVERY

NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year)

02.07.96

Applicant's or agent's file reference
4798.P CP

IMPORTANT NOTIFICATION

International application No.

PCT/US 95/05219

International filing date (day/month/year)

04/05/1995

Priority date (day/month/year)

06/05/1994

Applicant

THE UPJOHN CO. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**
The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



European Patent Office
D-80298 Munich
Tel. (+49-89) 2399-0, Tx: 523656 epmu d
Fax: (+49-89) 2399-4465

Authorized officer

Jose Ramon Ambroa

Telephone No.

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT


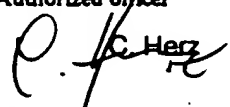
(PCT Article 36 and Rule 70)

| | | | |
|---|---|---|---|
| Applicant's or agent's file reference 4798.P CP | | FOR FURTHER ACTION | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |
| International application No. PCT/US 95/ 05219 | International filing date (day/month/year) 04/05/1995 | Priority date (day/month/year) 06/05/1994 | |
| International Patent Classification (IPC) or national classification and IPC C07D309/32 | | | |
| Applicant THE UPJOHN CO. et al. | | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consists of a total of _____ sheets.

3. This report contains indications and corresponding pages relating to the following items:
- I ☒ Basis of the report
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☒ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

| | |
|---|---|
| Date of submission of the demand 06/11/1995 | Date of completion of this report 02.07.96 |
| Name and mailing address of the IPEA/  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0, Tx: 523656 epmu d Fax: (+49-89) 2399-4465 | Authorized officer  Telephone No. |

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/ US 95/05219

I. Basis of the report

1. This report has been drawn up on the basis of:

☐ the international application as originally filed.☒ the description, pages _____, as originally filed,

pages _____, filed with the demand,

pages _____, filed with the letter of _____,

pages _____, filed with the letter of _____.

☐ the claims, No. _____, as originally filed,

No. _____, as amended under Article 19,

No. _____, filed with the demand,

No. _____, filed with the letter of _____,

No. _____, filed with the letter of _____.

☐ the drawings, sheets/fig. _____, as originally filed,

sheets/fig. _____, filed with the demand,

sheets/fig. _____, filed with the letter of _____,

sheets/fig. _____, filed with the letter of _____.

2. The amendments have resulted in the cancellation of: pages: _____

sheets of drawings/figures No.: _____.

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box.

4. Additional observations, if necessary:

II. Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:☐ copy of the earlier application whose priority has been claimed.☐ translation of the earlier application whose priority has been claimed.2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid.

Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/ US 95/05219

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

| | | | |
|-------------------------------|--------|-------|-----|
| Novelty (N) | Claims | _____ | YES |
| | Claims | 1-39 | NO |
| Inventive step (IS) | Claims | _____ | YES |
| | Claims | 1-39 | NO |
| Industrial applicability (IA) | Claims | 1-39 | YES |
| | Claims | _____ | NO |

2. Citations and explanations

The priority documents pertaining to the present application and the above-mentioned documents were not available at the time of establishing this first written opinion. Hence, it cannot be determined if the subject-matter claimed in the above-mentioned documents enjoys priority rights from the filing dates of their priority documents and, consequently, if it is novelty-destroying to the subject-matter presently claimed. If it later turns out that the claimed priorities are correct, documents identified by the letter „X“ as cited in the Search report are prejudicial to the novelty of the subject-matter claimed as they specifically and generically disclose compounds of formula I as claimed in the present application (e.g. Example 229 in WO-A-94/11361). Novelty of the common areas cannot be recognised. The applicant is required to delimit the subject-matter claimed in the present application from that in the prior art (Article 33 (2) PCT).

As the documents cited already disclose the same or similar compounds and their use as antiviral agents the compounds claimed in the present application and their use are regarded as obvious vis-à-vis these documents not exhibiting any inventive step (Art. 33 (3) PCT).

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/ US 95/05219

VI. Certain documents cited

1. Certain published documents (Rule 70.10)

| <u>Application No. Patent No.</u> | <u>Publication date (day/month/year)</u> | <u>Filing date (day/month/year)</u> | <u>Priority date (valid claim) (day/month/year)</u> |
|---------------------------------------|--|---|---|
| WO-A-94/11361 | 26/05/94 | 09/11/93 | 13/11/92 13/07/93 01/10/93 |
| WO-A-94/18188 | 18/08/94 | 03/02/94 | 05/03/93 27/05/93 17/12/93 |

2. Non-written disclosures (Rule 70.9)

| <u>Kind of non-written disclosure</u> | <u>Date of non-written disclosure (day/month/year)</u> | <u>Date of written disclosure referring to non-written disclosure (day/month/year)</u> |
|---------------------------------------|--|--|
| _____ | _____ | _____ |

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

The Upjohn Company
Corporate Intellectual Property Law
Attn. GAMMILL, Martha, A.
301 Henrietta Street
KALAMAZOO, MICHIGAN 49001
UNITED STATES OF AMERICA

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

RECEIVED
MAR 13 1996

CORP. PATENT
TRADEMARKS

Date of mailing
(day/month/year)

08/03/96

Applicant's or agent's file reference

4798.P CP

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.

PCT/US95/05219

International filing date
(day/month/year)

04/05/95

Applicant

THE UPJOHN CO. et al.

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.

Where? To the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2; the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicants's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

M. PEIS

M. PEIS

NOTES TO FORM PCT/ISA/220

These notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty and of the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

The claims only.

The description and the drawings may only be amended during international preliminary examination under Chapter II.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confounded with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

NOTES TO FORM PCT/ISA/220 (continued)

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; Claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 TO 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings which cannot be amended under Article 19(1).

The statement will be published with the international application and the amended claims.

The statement should be brief, it should not exceed 500 words if in English or if translated into English.

It should not be confounded with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It should not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

In what language?

The amendments must be made in the language in which the international application is published. The letter and any statement accompanying the amendments must be in the same language as the international application if that language is English or French; otherwise, it must be in English or French, at the choice of the applicant.

Consequence if a demand for international preliminary examination has already been filed?

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase?

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|---|---|--|
| Applicant's or agent's file reference 4798.P CP | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/US 95/05219 | International filing date (day/month/year) 04/05/95 | (Earliest) Priority Date (day/month/year) 06/05/94 |
| Applicant THE UPJOHN CO. et al. | | |

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (see Box I).

2. ☐ Unity of invention is lacking (see Box II).

3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.

☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ Transcribed by this Authority

4. With regard to the title, ☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

PYRANONE COMPOUNDS USEFUL TO TREAT RETROVIRAL INFECTIONS

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is:

Figure No. _____ ☐ as suggested by the applicant.
☐ because the applicant failed to suggest a figure.
☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 95/05219

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C07D309/32 C07D309/38 C07D401/12 C07D403/12 C07D417/12
A61K31/365 A61K31/44 A61K31/47 A61K31/415 A61K31/505
A61K31/54

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 C07D A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| X,P | WO,A,94 11361 (THE UPJOHN COMPANY) 26 May 1994 cited in the application * Charts JJ, MM, NN, PP, SS, BBB, DDD * see claims 1-3; example 229 --- | 1-8 |
| X,P | WO,A,94 18188 (THE UPJOHN COMPANY) 18 August 1994 cited in the application * Examples * see claims 1-3, 11-14, 20 --- | 9-13 |
| A | FR,A,1 276 654 (M. D. MOLHO) 16 March 1962 see claim 1 --- | 1-39 |
| A | US,A,3 325 515 (ETABLISSEMENTS CLIN-BYLA) 13 June 1967 see claim 1 ----- | 1-39 |

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

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- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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Date of the actual completion of the international search

25 January 1996

Date of mailing of the international search report

- 8. 03. 96

Name and mailing address of the ISA

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Authorized officer

Herz, C

INTERNATIONAL SEARCH REPORT

Information on patent family members

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PCT/US 95/05219

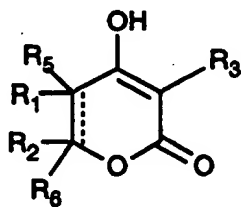
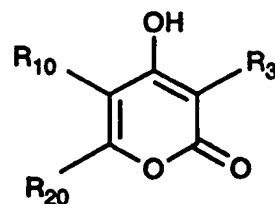
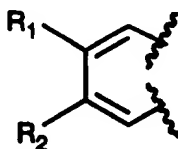
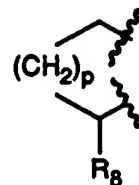
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| | | NO-A- | 953070 | 04-10-95 |
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| | | GB-A- | 1007624 | |
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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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|--|-----------|---|
| (51) International Patent Classification ⁶: C07D 309/32, 309/38, 401/12, 403/12, 417/12, A61K 31/365, 31/44, 31/47, 31/415, 31/505, 31/54 | A3 | (11) International Publication Number: WO 95/30670 (43) International Publication Date: 16 November 1995 (16.11.95) |
| (21) International Application Number: PCT/US95/05219 (22) International Filing Date: 4 May 1995 (04.05.95) (30) Priority Data: 08/238,817 6 May 1994 (06.05.94) US 08/349,361 2 December 1994 (02.12.94) US (60) Parent Application or Grant (63) Related by Continuation US 08/349,361 (CIP) Filed on 2 December 1994 (02.12.94) (71) Applicant (for all designated States except US): THE UPJOHN COMPANY [US/US]; 301 Henrietta Street, Kalamazoo, MI 49001 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): ROMINES, Karen, Rene [US/US]; 62181 41st Street, Paw Paw, MI 49079 (US). BUNDY, Gordon, L. [US/US]; 7622 Ravenswood Drive, Portage, MI 49002 (US). SCHWARTZ, Theresa, M. [US/US]; 8921 West C Avenue, Kalamazoo, MI 49009 (US). TOMMASI, Ruben, A. [US/US]; 1 Plantation | | Road, Whitehouse Station, NJ 07960 (US). STROHBACH, Joseph, Walter [US/US]; 54490 M-66, Mendon, MI 49072 (US). TURNER, Steven, Ronald [US/US]; 1713 Banbury Road, Kalamazoo, MI 49001 (US). THAISRIVONGS, Suvit [US/US]; 5695 Swallow, Kalamazoo, MI 49002 (US). ARISTOFF, Paul, Adrian [US/US]; 1650 Brookmoor Lane, Kalamazoo, MI 49002 (US). JOHNSON, Paul, D. [US/US]; 6960 Towhee, Portage, MI 49002 (US). SKULNICK, Harvey, Irving [US/US]; 1745 Old Deer Run, Kalamazoo, MI 49009 (US). SKALETZKI, Louis, L. [US/US]; 3731 Greenleaf Circle, Kalamazoo, MI 49008 (US). ANDERSON, David, John [GB/US]; 3809 Middlebury, Kalamazoo, MI 49006 (US). MORRIS, Joel [US/US]; 3001 Applelane, Kalamazoo, MI 49008 (US). GAMMILL, Ronald, B. [US/US]; 6704 Pleasantview Drive, Portage, MI 49002 (US). LUKE, George, P. [US/US]; Apartment 3 B, 6365 Bravo Court, Kalamazoo, MI 49002 (US). (74) Agent: GAMMILL, Martha, A.; The Upjohn Company, Corporate Intellectual Property Law, 301 Henrietta Street, Kalamazoo, MI 49001 (US). (81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 25 April 1996 (25.04.96) |

(54) Title: PYRANONE COMPOUNDS USEFUL TO TREAT RETROVIRAL INFECTIONS**(57) Abstract**

The present invention relates to compounds of formulae (I) and (II) which are pyran-2-ones, 5,6-dihydro-pyran-2-ones, 4-hydroxy-benzopyran-2-ones, 4-hydroxy-cycloalkyl[b]pyran-2-ones, and derivatives thereof, useful for inhibiting a retrovirus in a mammalian cell infected with said retrovirus, wherein R₁₀ and R₂₀ taken together are formulae (III) and (IV).

**(I)****(II)****(III)****(IV)**

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C07D309/32 C07D309/38 C07D401/12 C07D403/12 C07D417/12
 A61K31/365 A61K31/44 A61K31/47 A61K31/415 A61K31/505
 A61K31/54

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C07D A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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| X,P | WO,A,94 18188 (THE UPJOHN COMPANY) 18 August 1994 cited in the application * Examples * see claims 1-3,11-14,20 --- | 9-13 |
| A | FR,A,1 276 654 (M. D. MOLHO) 16 March 1962 see claim 1 --- | 1-39 |
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Date of the actual completion of the international search

25 January 1996

Date of mailing of the international search report

8.03.96

Name and mailing address of the ISA

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 Fax (+31-70) 340-3016

Authorized officer

Herz, C

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| | | EP-A- | 0682663 | 22-11-95 |
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| | | NO-A- | 953070 | 04-10-95 |
| FR-A-1276654 | 16-03-62 | NONE | | |
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